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ABSTRACT

Educational accountability, as linked to changing socioeconomic attitudes and conditions, is noted to have contributed to the decline of the audiolingual method of language instruction. Following a discussion of the pedagogical implications and inadequacies of audiolingual theory, the author analyzes the nature of this teaching methodology, first proposed by John Carroll as the cognitive code-learning theory. The educational theory developed by David P. Ausubel in this domain is suggested to provide the natural psychological foundations for the cognitive code-learning focus for foreign languages. The article analyzes, in general terms, Ausubel's theories and their applicability to language instruction. (RL)

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COGNITIVE THEORY IN TEACHING FOREIGN LANGUAGES

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An irrate parent approached the principal of the elementary school, where his ten-year-old son had been a student since age six, with the challenging question, "Why aren't your teachers doing the job that they are being paid to do?"

Rather than to answer the question directly the self-composed principal, accustomed to dealing with emotionally distressed parents, opened a discussion with the parent in an effort to ascertain the full meaning behind his question.

The parent's son had finished the fifth grade, the summer recess had ended, and he was ready to begin grade six. At the beginning of the summer he was reading at a low second-grade level and his ability in arithmetic was equally low. At the cost of $150 the father had enrolled his son in reading and mathematics at the Westinghouse School of Learning for a six-weeks session. The guarantee was that the boy would progress at least one grade level in each of the subjects, or they would work with him beyond the six weeks at no extra charge until he did make such an achievement. Actually, he had progressed more than one and a half grade levels in arithmetic and almost two grade levels in reading as measured by standardized tests, all within the six-weeks session.

The father's question to the principal was that if Westinghouse can

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succeed with his son, why can't regular teachers succeed with him. He resented paying taxes to have his son educated and then have to pay a private organization to accomplish what the public schools had been unable to accomplish.

The word "accountability" has become popular in recent months in discussions about school learning. Evidence that students who fail in certain instructional environments manage to experience more than average success when placed in another instructional environment suggests that someone in our public educational systems (other than the student) might be held accountable for student achievement.

The growing demand for accountability seems to be the result of four influences. First, the average family is no longer willing to try to keep up with the spiraling cost of education from out of its own budget. Local ballot propositions that would increase taxes to support education are repeatedly voted down by the taxpayer.

Second, there is ever increasing evidence that the application of management procedures from business can procure results in the field of education where outmoded school techniques have failed. If it can be done by outside organizations, why can't the schools do it?

Third, many young people with high school diplomas are inadequately prepared for some of the most basic jobs in society. The taxpayer resents continued financial support of an institution that is not doing its job properly.

Finally, the student himself is voicing concern about the relevancy for adult living of many course offerings of public educational institutions. The student also is disillusioned at the meager amount of learning and lack of retention of learnings from many of those courses that do seem relevant.

Some consequences of student unrest have seriously effected foreign language offerings. Colleges and universities across the nation have been forced by student pressure to either decrease or abolish foreign language requirements. Students who have filled the foreign language requirements of previous years tend to agree that their learning was not sufficient to enable them to reach any useful degree of fluency in the language and that most of what they did learn was promptly forgotten.

Some students who have followed class enrollments in the secondary schools are quick to point out that the mortality rate between Language 1 and Language 2 often runs more than 50 percent. By the time a student enrolls in a fourth-year language class on the high school level he is no longer one of 200 students as he was in Language 1. He is now one of fifteen or fewer, hopefully a sufficient number to justify a teacher for that class.

The administrators of our schools as well as foreign language teachers are aware of this low measure of success. It has become so common place, so much the rule rather than the exception, that few teachers would even consider it an indicator of failure. But there are parents and government representatives of the people everywhere who voice resentment that a high school student should spend two full years studying a foreign language to drop it long before fluency is acquired and rarely put to use or see any value resulting from the learnings of that two-year sequence.

Parents are asking for accountability. Russell W. Peterson, Governor of Delaware, made the following statement, which is representative of the attitude of many:

> When a child fails to learn, school personnel have all too often labeled him "slow", "unmotivated" or "retarded". Our schools must assume the commitment that every child shall learn. Such a commitment must include the willingness to change a system that does not work, or to find one that does; to seek causes of failure in the system and its personnel, instead of entirely in students.[1]

The failure of the foreign language teacher was evident during World War II when the military had difficulty finding men with a knowledge of more than one language. Their lack of faith in the ability of the schools to train men in a second language was demonstrated by their seeking elsewhere for the development of a program that could provide in a short time men with these necessary skills.

The search for help outside the schools was apparent again when Congress began appropriations in 1958 through NDEA for the retraining of foreign language teachers. This was accompanied by the audio-lingual habit-forming approach to learning foreign languages. But even though the number of students studying a foreign language soared, the mortality rate remained unchanged, indicative of little improvement toward success.

There appear to be three possible avenues for the study of foreign languages to take in the near future. First, it is possible that external forces, such as Sputnik and the NDEA, might come once more to the rescue and replace foreign languages high on the list of important subjects for students to take, regardless of the degree of success actually achieved by students.

Second, the study of modern foreign languages can move in the same direction as the study of Latin and Greek. Such courses can be left for a small minority of students who are curious or have some personal reasons for studying them.

Third, the challenge to be successful might be accepted by teachers, trainers of teachers, textbook authors and all others concerned with accountibility in foreign language education. They might begin to study the approaches used by such organizations as the Westinghouse School of Learning. They might begin to organize and find ways of using to good advantage the wealth of available educational theory in order to bring about the success sought

after.

How is it that some private companies that have moved into the education market are able to guarantee results for the learner? A brief conversation with those in charge of such organizations usually reveals a sound awareness on the part of these people of some basic principles of learning and instruction. They seem to have assimilated and possess at their command a practical grasp of many of the theories dealing with human learning to which most teachers were barely exposed during college teacher training years.

Such organizations thoroughly test the child prior to any instructional efforts, to find out exactly where he is along the learning continuum of the particular subject matter. With this knowledge they begin exactly where he is so that his initial learning efforts are rewarded with success. Motivation of the child is not only increased by success, but through other uses of reinforcement theory. Accomplishments are rewarded extrinsically by permitting the child to win points when finishing correctly a specified amount of work within a given time period. When a certain number of points have been earned, they may be exchanged for some tangible reward from a variety offered. Children frequently leave these learning centers reluctantly and return to them eagerly the next day to experience more success and to win more points.

Parents ask why such an organization can set up almost over night a small school and achieve results that the public schools were unable to achieve even after more than a century of experience behind them.

The audio-lingual habit formation methodology is giving way to the cognitive code-learning approach. John Carroll, a psychologist from Harvard University, was the first to use the term "cognitive code-learning". He first used it in an address on September 5, 1964 to the International Conference on Modern Foreign Language Teaching in Berlin.[2] In this address he

discussed some of the contributions made to the teaching of foreign languages from psychological theory and educational research.

Among the theories of mental organization and functioning held by psychologists today two overlapping, yet distinctive views have the greatest number of advocates. Those who hold one view are called neo-behaviorists. Skinner and Osgood are representative of this group. This theory exercised considerable influence on the development of the audio-lingual habit formation approach to learning foreign languages. The new-behaviorists believe that cognition or mental functioning is most satisfactorily described in terms of stimulus-response theory, i.e., in terms of chains made up of a stimulus followed by a response which in turn becomes the stimulus for another response, etc.[3] They theorize that all behavior is best explained in terms of S-R theory and, therefore, there is no reason to hypothesize that there is more to the cognitive structure (mind) than these S-R chains.

Those who hold the second theory are called cognitivists.[4] Representative of this group are Ausubel, Bruner and Gagné. Although their theories differ somewhat, they all have in common belief in the existence of a cognitive structure in which ideas are formed and stored with various degrees of retrievability. Their theories explain the functioning of this cognitive structure in the light of experimental evidence from psychology.

At approximately the same time that Carroll delivered his address in Berlin, there appeared in the Modern Language Journal an article by Ausubel in which he discussed several features of the audio-lingual approach that were psychologically incompatible with the learning process in adolescents and adults.[5] Beginning with this article some foreign language educators became interested in Ausubel and subsequently have gained considerable useful information from his cognitive approach to learning.

Kenneth Chastain gives a simplified resume of Ausubel's theories of cognition in his methods text.[6] He also outlines some of the obvious contrasts between the audio-lingual habit forming approach and the cognitive code-learning approach. Chastain emphasizes that as of the time of his writing there was no textbook published that falls into the cognitive code-learning category. Since then a Spanish series has been published by Houghton Mifflin Company that makes extensive use of cognitive code-learning theory.[7] Surely, others will follow in the near future.[8]

Ausubel's first degree was in medicine. This was followed by a doctorate in psychiatry. Through his work in psychiatry he became interested in the psychology of learning. His publications are very scholarly and well researched. He has tended to work in five-year cycles, first producing in 1954 a text on adolescent pyschology.[9] This was followed by a book on child development in 1958.[10] The book that best presents his theory of cognition is The Psychology of Meaningful Verbal Learning, published in 1963.[11] And his next major work was published in 1968, Educational Psychology: A Cognitive View.[12]

Until the reader learns Ausubel's particular vocabulary and style of writing (and he has developed his own), much of his writing on cognitive theory is rather difficult to read with understanding. For example, the following is a short excerpt from Educational Psychology: A Cognitive View, in which he discusses retention: ". . . barring repetition or some other special reason (for example, primacy, uniqueness, enhanced discriminability, or the availability of a specially relevant, clear and stable anchoring idea) for the perpetuation of their dissociability, newly-learned ideas that are related to established ideational systems tend gradually and spontaneously to become undissociable from their anchoring ideas--to undergo obliterative assimilation, . . ."[13]

Ausubel's subsumption theory of cognition provides the natural psychological foundations for the cognitive code-learning focus for foreign languages. Ausubel believes that the cognitive process is capable of retaining broad generalizations (when substantially anchored), but incapable of holding for very long the more detailed instances of generalizations which are readily "forgotten" or subsumed into (become undissociable from) the broader generalizations. Hence, his focus in instruction is much more on teaching "meaningful" generalizations through receptive learning (a deductive approach) rather than providing numerous examples of the generalization in practice toward discovery learning (an inductive approach).

Extremely important to Ausubel is that <u>all</u> learning be meaningful. For meaningfulness to occur there already must be learnings firmly anchored and secure within the cognitive structure of the learner to which the new learning may be related and tied. And, it must be related in a "non-arbitrary" and "substantive" way. He uses these two adjectives often and to understand what he means by them is very important to the understanding of his theory of cognition. Rote learning, as opposed to meaningful learning, must be acquired in a specified or arbitrary way (rather than non-arbitrarily) and is retained according to the pre-specified verbal sequence not to be deviated from (rather than retained substantively). In meaningful learning (the opposite of rote learning) the new material is retained by the functional usability of its content, not by specific verbatim memorizing.

With meaningfulness as the foundation, Ausubel expands his subsumption theory to include and explain in relation to it basic findings from research. His awareness of such research is exhaustive as evidenced by the comprehensiveness of his writings. In part, it is this thoroughness that makes his psychology a satisfactory basis for most all facets related to learning and instruction.

The goals of the cognitive approach include not only a thoroughly meaningful understanding of all skills and knowledge provided for the learner, but also maximum retention of all learnings as well as the ultimate development of a high degree of "usability" (automaticity). These goals will find achievement through a maximum use of learning theory with a major leaning toward meaningful verbal learning as contrasted with rote, verbatim memorization through imitation.

Many of the resulting changes in instruction that are forthcoming have not been and never would be within the capabilities of teachers to provide for themselves. The accumulation of knowledge has become too great. Already teachers are overworked. Teachers everywhere attempt to provide instruction for five classes a day with an average of thirty students per class. Some teachers are responsible for six classes each day. They do not have the time to provide instruction materials and planning that will assure maximum success with all students, and neither do they have in sufficient depth the other necessary skills to accomplish such a task. Teachers owe it to their students to demand from publishers instructional materials that have been test taught and have given substantial evidence of providing opportunities for success in second language learning for <u>all</u> students intellectually capable enough to survive in the public schools.

If there were no restrictions on the development of instructional materials built on a cognitive code-learning approach, if appropriate personnel were available and sufficient funds provided for comprehensive test teaching of the materials under all kinds of teacher-learner combinations with ample opportunity for revision-retesting cycles, the following suggestions seem appropriate toward making available materials that will very nearly abolish the high mortality rate of foreign language students and make possible a success in student learning heretofore unachieved.

The team of experts who would develop these materials would differ from the usual team in that each would have sufficient knowledge of the fields of the others so that all of them have the ability to synthesize.

First, there is a native speaker who has remained up-to-date in his language and is fluent in English. He has had substantial training in applied linguistics and learning theory and has been a successful classroom teacher. His life as a native speaker was such as to make him a speaker of at least two dialects. He has learned well how to fill the role of native-informant in working with linguists.

Next, there is an applied linguist who has specialized in describing the target language as meaningfully as possible for speakers of English. He also has a good knowledge of learning theory and has been a successful classroom teacher.

A third member of the team is a specialist in learning theory and curriculum development. He has a good understanding of applied linguistics, is nearly fluent in the target language, and he has been a successful classroom teacher.

The fourth member has various competencies in research and evaluation, and especially in field testing curricular materials. He has a good knowledge of the target language and has been a successful classroom teacher.

Planning begins with a comprehensive listing of the learning content of the target language. Then, in relation to this content, the authors decide exactly what they want students to be able to do when they have completed the total learning sequence that they could not do when they began. With these objectives in mind (and, of course, they are free to change the objectives in the light of what they learn during the test teaching of the materials) for each content item, they carefully sequence the content material so as to provide maximum positive transfer and to avoid interference from one

learning to another.

Transfer theory is one of the most significant components of the cognitive approach. There is a great amount of power to facilitate and propel learning through a wise instructional use of transfer theory. The use of positive transfer influences the decisions of the team as they sequence the content of the target language in two ways: First, they are interested in using what the student already knows about language and communication as an anchor for similar, yet different, learnings about the target language. Second, they wish to sequence the introduction of content material whenever possible so that learning one thing will facilitate the learning that follows. At the same time, they wish to avoid sequences where learning will interfere with that which follows.

An example of transfering what is already well established in the cognitive structure of the English speaking student toward facilitating the learning of Spanish, Franch and German is easily recognized in the teaching of cultural contrasts in the use of tú and usted, tu and vous or du and Sie. Students are first lead to recognize how this distinction is made regularly in English even though two contrasting second person pronouns and verb forms no longer exist. When Robert F. Maynor was a small child and introduced himself to another child or an adult he said, "My name is Bobby." In French, German or Spanish this gives consent to address that person with the familiar form. When his mother was upset with him, she growled at him, "Robert Maynor, you come here." This formality, indicative of displeasure on the part of the adult with the child, is expressed in the target language by using the formal pronoun in place of the usual informal. When Robert Maynor becomes an adult and introduces himself to a child or another adult, he says, "I am Robert Maynor," indicating that their relationship is more formal and that the child or adult stranger is expected to address him formally, equivalent

to the use of the formal pronoun in the target language. Robert Maynor is to appear in court. He asks Bill Smith, a lawyer and good friend to handle the case for him. Bill Smith, who generally calls him Bob, addresses him in court as "Mr. Maynor", indicating the shift from the usual informal mode of address used with close friends to the formal when in social situations that require it. And so the similarities of usage between what is already known and what is to be learned are made explicit so as to establish an anchoring relationship between that which is already firmly fixed in the cognitive structure and that which is being learned.[14]

The use of the subjunctive serves as another illustration of positive transfer from English to the target language. The child is led from what he uses without hesitation in English to what he must learn to use with even greater frequency in Spanish. The learner has no trouble saying, "My teacher demands that I be here on time," an instance of the subjunctive in the subjoined clause following a verb of influencing. He can be led to extend this construction in more stilted English or even very unlikely constructions as "She asks that I be here on time" or "She desires that I be here on time." Then, these are explained to correspond to normal structures in Spanish where this usage is much more consistent and frequent than in English.

The following is an example of the utilization of sequencing based on positive transfer within the target language illustrated in Spanish. The days of the month are taught sometime after mastery of ordinal numbers from "first" through "tenth". Then the student is made aware that September through December were the seventh through the tenth months in the old Roman calendar, hence, the similarity between séptimo (seventh) and septiembre, octavo (eighth) and octubre, noveno (ninth) and noviembre, and décimo (tenth) and diciembre. Of course, unless the ordinal numbers are firmly planted in the cognitive structure (well anchored) before this comparison is made, nega-

tive transfer is likely to occur; that is, they interfere with rather than facilitate the learning of the months.

A common example of negative transfer or interference because of exposure to many similar but different learning problems before the first ones have firmly anchored in the cognitive structure is seen in the learning of many different but similar forms of a complicated verb tense in the language. In Spanish, students are frequently required to "learn" both regular and irregular forms of the preterit in one or two class sessions. In the past some texts have gone so far as to present the morphology of both the preterit and the imperfect, regular and irregular, along with their various contrastive uses in a single chapter! The similarity of all the preterit verb forms is such that trying to learn them for regular e and i verbs on the same day or the day following initial exposure to the forms for regular a verbs, results in considerable interference or negative transfer. Then, in the midst of this mental turmoil the student is exposed to irregular forms. Nothing has had time to become firmly established in the cognitive structure, so everything is in flux, without anchorage, an incoherent jumble. Retention is impossible since the original degree of learning has not been satisfactory. No adequate distribution of practice has been provided. Motivation deteriorates from lack of success. Only the most diligent student achieves a certain level of success through rote learning techniques, which, according to the cognitivist, and as demonstrated repeatedly to the classroom teacher, will result in a low level of retention, not to mention achievement of any competent level of automaticity.

The authors provide for ample opportunity to learn one preterit form thoroughly before a second one is introduced. Then the similarities between the two are used to effect positive transfer. No irregular forms are presented until regular forms are mastered (or the reverse procedure is followed

if found through experimentation to be more effective). A relatively small amount of class time is spent each day toward mastery of the preterit, but the presentation and practice opportunities extend over several weeks. Through carefully tested distribution of short but frequent practice periods a much higher degree of mastery is achieved while actually using a smaller total amount of class time than in a more traditional setting where all practice opportunities are massed over two or three class sessions mainly devoted to the learning of preterit morphology.

So, according to Ausubel's cognitive model, all material is presented in a meaningful way, that is, it is related to something the learner already has securely anchored in his cognitive structure. Other important aspects of cognitive functioning are tak n into consideration to provide maximum learning and retention.

The student objectives are measured at frequent checkpoints. The authors compose the tests that provide evidence that the objectives have been achieved. They take the responsibility for writing materials that, when used properly by the teacher, enable the learners to achieve the objectives. The materials are field tested in a variety of school situations. When the materials are taught properly and students do not achieve the objectives stated for them, the materials are reworked and field tested again, and this procedure is repeated, until they become the means whereby students can be successful.

According to cognitive theory, learning that is meaningful is acquired when the learner has the appropriate learning set, that is, when he has the necessary motivation to learn. Therefore, the materials are developed with such variety as to afford interest to the learners. Practice opportunities are provided at a level of difficulty that assures continual success but with enough challenge to prevent boredom. Also, the materials are presented in such a way as to enable the learner to know whether or not his responses

are correct immediately after he has made them. By having interesting material, being successful, and knowing that they are successful immediately following each attempt, the student's level of motivation is kept high.

The materials provide for active participation by all learners during all class time devoted to the course. This active participation may be covert, that is, only mental; but it will be continuous without lapses of non-attention caused by periods of inactivity, as occurs, for example, when the teacher becomes tutorial, teaching to a single student rather than leading the learning of the whole class.

Multiple approaches are provided for the presentation and practice of those learning problems proven to be unsuccessfully handled by some students in group-learning environments. This enables the teacher to prescribe alternate approaches according to the most successful style of learning of particular individuals. But this need is far less than in conventional classes because of meeting the commitment of making all material meaningful to the learner from the first exposure.

A great variety of practice opportunities are provided according to the need dictated by the complexity of the problem being learned. These practice opportunities are massed initially so as to provide a sufficient degree of original learning. Then they are spaced at ever-increasing intervals so as to maximize retention. Subsequent practice opportunities gradually increase in difficulty according to the nature of the problem and the desired level of pupil achievement. The intervals of practice are spaced at ever-increasing distances from each other until field tests confirm a degree of learner mastery and retention that will show little or no loss over the summer vacation period.

All material is purposefully kept alive, especially after formal tests, so that students perform even better in relation to each objective at the end

of the course than they do when they are first tested on it. This practice following tests provides non-alerted practice opportunities (non-alerted meaning that it is not announced to the students just what problem in the language is being practiced). This enables the student to perform correctly with a high degree of automaticity.

Rather than to expose the student on the first day of class to a majority of the sounds of the target language in a dialog, the learning of pronunciation is carefully controlled. The student first works with all the sounds in the target language that do not differ significantly from those in English. To these are added only one or two foreign sounds carefully selected so as not to interfere with each other. Several days of practice are provided before introducing another sound foreign to English phonology. In this gradual way the entire phonological system of the target language is presented.

Almost simultaneously to the presentation of the new sounds, their letter correspondences are presented so that students learn systematically what letters represent which sounds and the reverse. The problems of interference (negative transfer) from English are faced directly and "meaningfully" as simple learning problems. The minimal pair technique is used to point out the problem in interference and to provide contrastive practice towards its elimination.

This also provides the opportunity for the learner to write words almost from the beginning, thus utilizing early this extremely helpful learning modality rather than postponing it. Copying is usually rote learning and rarely will have a place in the cognitive approach. Most spelling practice is provided through dictation. This skill is developed carefully so that students learn which sounds are consistently spelled by only a single letter or combination of letters. From that point on, all of these sounds can be

spelled by ear, that is, when the student hears these sounds, he knows that there is only one way to spell them. Those sounds that have alternate spellings that are governed by consistent rules are learned so that they can also be spelled correctly when they are heard. Students then learn that words containing any of the sounds that have two or more spellings not governed by rules can only be guessed at when being spelled. Students need to see the words containing these sounds in order to learn their spelling. But even in these instances, highly frequent consistencies of spelling are learned through positive transfer from base forms to derivatives and from the consistency in the spelling of affixes and most cognates.

Listening comprehension practice is sequenced so as to assure success for the student. At initial stages only vocabulary and structures that the student has nearly mastered are used. The first recorded voices heard are those of clearly enunciating native speakers whose normal speaking rate is slower than average. Building upon experiences made successful by these precautions, listening comprehension skill is carefully developed through gradual sequencing of increasingly more difficult material until the student becomes proficient in comprehending a conversation between two fast-speaking natives that includes unfamiliar vocabulary and structures, the meaning of which is understandable from context.

The learning of vocabulary takes place in as meaningful a way as possible; "meaningful" still refers to the attachability of new learnings to something already well anchored in the cognitive structure. This is done through association, cognate recognition, reference to already known vocabulary, base forms, learning of word groups in sets where they are all related to the same topic or are instances of the same category, and in pairs (synonyms, antonyms and associated pairs). Regularly spaced review opportunities are provided so as to allow for an accumulation of vocabulary with-

out problems in retention of nor interference from earlier learned words. For the first two years, a substantial basic vocabulary is kept alive in this manner and readily available for use by the student in all four language skills. Some informal investigations give evidence that regular vocabulary review of three minutes a day is sufficient exposure for most students to accumulate a mastered vocabulary of over 500 words in a single semester.

Reading comprehension material is first very simple so as to assure success for the student. Graduated sequencing toward material of increasing complexity is provided much in the same way as for listening comprehension. This skill is developed along a continuum that provides feedback so that the teacher is given the opportunity to know the moment that students are not being successful in their reading. Diagnostic assessment makes it possible for the teacher to ascertain problems the moment they arise, and steps are provided for taking care of them. This technique, along with consistent mastery and maximum retention of all learned material, especially vocabulary, assures success in reading comprehension at more advanced levels of study. Cognitive strategies are developed for acquiring from context the meaning of unknown words.

Reading and listening comprehension content is sustained carefully at the interest level of most adolescents. Many topics aim at cultural contrasts between the native and the target cultures. Particularly are included those topics known to evoke cultural shock.

Practice opportunities are carefully selected and built into the program so as to provide feedback during most class activities as to how well students are progressing in each area of learning. Alternate instructional strategies are readily available for the teacher to use in the event the regular materials are not progressing with a satisfactory degree of success with a given class of students.

Pre-tests are designed for use at the beginning of second, third and fourth level language courses. These pre-tests provide a sampling of all learning problems in the prerequisite courses. The teacher then learns at the beginning of the course exactly where each student stands in his capabilities in the language and what he has available in his cognitive structure to use as anchors for new learnings. Individual instructional units are available for assignment to students who demonstrate deficiencies.

In-service training efforts in short summer sessions have not been sufficient to develop more than a small portion of the potential instructional capability of the foreign language teacher. Much more of this potential must be utilized in order to take sufficient advantage of instructional materials based on a cognitive approach so as to decrease the foreign language student mortality rate and assure success. The author team assumes the responsibility of providing the means whereby the teacher can develop more of his instructional potential.

Improvement in instruction seems most fittingly measured by the degree of success of one's students. The best environment for practice toward this kind of improvement is the classroom. The instructional materials will have built into them explanations of the use of sound pedagogy at the exact point during instruction when a given theory is put into practice. The teacher will be able to learn through following the guidance in the materials and through carrying out the advocated instructional procedures. In this way a very practical course in learning theory and methodology is provided within the materials, to be studied before teaching and then immediately put into practice with the opportunity to observe the results thereof.

The most recent aids to understanding and teaching the target language as provided by the applied linguist are built into the materials in order to facilitate student learning. Consequently, the teacher is provided with

a thorough, up-to-date course in applied linguistics merely from his normal instructional efforts.

The cognitive code-learning approach is characterized especially by less rigid methodological boundaries. In fact, because of the emphasis on experimental procedures, lack of bias, and openness to new discoveries that might improve his theory, the cognitivist is in a position to be eclectically pragmatic. He is interested in acquiring an understanding of cognition that not only explains learning behavior, but that also enables him to control learning and predict the outcomes.

If the foreign language teacher accepts the goals of the cognitivist, he will seek to be aware of and understand the learning process as it moves forward in each of his students. His teaching will be diagnostic. He will constantly be striving to know how each student is progressing and what decisions to make to continue to propel that student forward.

FOOTNOTES

1 Accountability in Education, ed. Leon M. Lessinger and Ralph W. Tyler. Worthington, Ohio: Charles A. Jones Publishing Co., 1971, pp. 21, 22.

2 This address was published in the Modern Language Journal, 1965, 49, pp. 273-281.

3 For an informative discussion of this view, see Arthur W. Staats, "Verbal Habit-Families, Concepts, and the Operant Conditioning of Word Classes," Psychological Review, 1962, 68, pp. 190-204.

4 For discussions of both views and a collection of experiments supporting each, see Readings in the Psychology of Cognition, ed. Richard C. Anderson and David P. Ausubel. New York: Holt, Rinehart and Winston, Inc., 1965.

5 "Adults versus Children in Second-language Learning: Psychological Considerations," Modern Language Journal, 1964, 48, pp. 420-424.

6 Kenneth Chastain, The Development of Modern-language Skills: Theory to Practice. Philadelphia: The Center for Curriculum Development, Inc., 1971.

7 William E. Bull, Laurel A. Briscoe, Enrique E. Lamadrid, Carl Dellaccio and Margaret J. Brown, Spanish for Communication. Boston: Houghton Mifflin Company, 1972. This instructional series contains a student text, daily lesson plans, workbook for individualizing instruction, and various audio-visual aids. See especially the daily lesson plans and student text.

8 Houghton Mifflin Company has contracted for the writing of a secondary French program and a college Spanish program.

9 Theory and Problems of Adolescent Development. New York: Grune and Stratton, 1954.

10 Theory and Problems of Child Development. New York: Grune and Stratton, 1958.

11 New York: Grune and Stratton, 1963.

12 New York: Holt, Rinehart and Winston, Inc., 1968.

13 ibid., p. 94.

14 For an example of this in operational form, see Bull, op. cit., (student text), Program 5, pp. 16-19.